

A Synthesis of L2 Listening

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Abstract: Listening is often claimed to be the most difficult of the four skills to develop when learning a second language. This is because it is the least controllable by the learner, who, unlike when reading, generally has very limited means of regulating the input stream. Indeed, it is the continuous nature of listening that seems to pose the greatest challenge, as words blend into each other, without clear boundaries to ease the burden of comprehension. In this synthesis, I describe the four main processes involved in L2 listening; namely neurological, linguistic, semantic, and pragmatic. The fact that these processes usually have to operate in parallel presents further challenges for the listener, as well as for practitioners who wish to help learners develop this most complex skill. There are, however, pedagogical techniques that can assist in this development. These include the use of compensatory strategies to deal with input that might otherwise seem overwhelming, and also the manipulation of live input through interaction and active listening.

Keywords: *listening, input, processing, compensatory strategies*

Introduction

Many learners and practitioners alike believe the acquisition of listening skills to be the most challenging aspect of learning a foreign language. Speaking and writing, as productive skills, can largely be controlled by learners, who can adjust their output in accordance with their ability or the exigencies of the situation. To a lesser extent reading, while an input-based skill, can also be controlled in the sense that learners usually have the opportunity to regulate the speed at which they process the input. Furthermore, the fact that written text includes white spaces assists the reader by clearly delineating word boundaries. Aural input, by contrast, reaches the listener as a continuous stream in real time which has to be decoded, segmented and parsed before it can be understood (Vandergrift & Baker, 2015). Even then the process is not complete because there are pragmatic and sociolinguistic elements to be considered. For instance, cultural and schematic factors can affect the degree to which even accurately decoded input is understood in context. In an attempt to comprehensively capture its dynamic and multi-faceted nature, Rost (2016) has divided the process of listening into four distinct, although overlapping, categories: neurological, linguistic, semantic, and pragmatic. I adhere to that format in this paper, while also addressing the pedagogical implications for second language learning.

Neurological Processing

Hearing actually precedes listening, as the latter implies a more focused attention to the incoming sound stream. Hearing, which provides a basis for listening, involves the perception and grouping of incoming sounds. The primary way it differs from listening is in terms of degree of intention, as listening implies a desire to understand and make sense of the sounds in the environment.

Attention has long been argued to be of fundamental importance in second language learning, and this is demonstrated very clearly in the act of listening. Attention involves the focusing of consciousness on a particular object or thought, which in turn stimulates the parts of the brain that are responsible for processing it (Rost, 2016). However, the limited capacity of the human brain means that we can only pay attention to one source of information at any one time, even though we can switch between sources very rapidly. It is this notion of selective attention that makes conscious listening necessary, as individuals must choose where to focus their attentional resources. We do this by prioritizing and shifting our attention to what is most relevant to our immediate needs, although such shifts can occur unconsciously, such as when we are distracted by an urgent sounding noise.

This brief summary has looked at the neurological background to listening but listening involves far more than simply attending to and processing auditory information. The basic human drive to make sense of and construct meaning from this information also requires the decoding of its linguistic elements, which can, of course, be the source of many problems for second language learners.

Linguistic Processing

Linguistic (or bottom-up) processing refers to the decoding of the speech stream in terms of its phonology, lexis, and syntax. The ability to recognize and understand these purely linguistic elements is obviously essential to one's listening skills as these form the foundation of the signal itself. Although it is true that the main purpose of spoken communication is to convey meaning, the opportunity to interpret and extract meaning is to a large extent dependent on the ability to decode the signal.

Recognizing words in continuous speech forms the basis of aural comprehension and, to this end, developing automaticity is an essential aspect of L2 acquisition (Andringa, Olsthoorn, van Beuningen, Schoonen, & Hulstijn, 2012). However, due to the lack of any clear word boundaries (unlike with written texts), word recognition is an imprecise process in the early stages of L2 learning. The listener can hold word forms in a phonological loop while further cues are being processed, although this is limited in capacity and risks being overwhelmed when faced with fluent speech in real time. This is one reason why learners must learn to tolerate ambiguity, while they wait for later input which can illuminate the meaning of an utterance. It is perhaps not surprising, therefore, that Martin and Ellis (2002), using an artificial language, found that both

phonological short-term memory and working memory influenced vocabulary abilities as well as the ability to learn, generalize, and produce correct grammatical structures.

Another important element of linguistic processing is based on phonotactic knowledge, which refers to the allowable sounds and patterns in the sound system of a language. The ability to discriminate between sounds not used in the L1 atrophies beyond adolescence, which poses a major challenge to adult learners of an L2. The difficulty of auditory decoding is heightened by the existence of allophonic variation, which refers to the alternate pronunciations of a word or form (such as *going to* versus *gonna*). This in turn is exacerbated by the fact that no two speakers pronounce the same word exactly the same in any case, due to the effects of dialect, gender, age, emotion, etc. Phonological representations must be processed rapidly and accurately for automatic word recognition to take place, but Broersma (2012) found that the activation of lexical competitors caused far more comprehension difficulties for non-native than native speakers of English.

Efficiency principles of speech production lie behind the rapid rate of native speaker output bemoaned by language learners the world over. Each language has its own forms of articulation but English, as a stress-timed language, is particularly prone to connected speech, which causes numerous allophonic variations that the listener must be able to interpret. These features include assimilation, elision, and vowel reduction, and they reduce the time taken for production and, by extension, the time available for processing. Although efficient for native speakers to use, these features cause huge difficulties for learners, especially if they have been exposed only to the written and citation forms of words, rather than natural spoken discourse.

The third element of linguistic processing is that of syntactic parsing, which takes place on two levels. In the first parse, the input is scanned for references to prior utterances, while in the second parse all words are allocated to grammatical categories and connections are established between them. Fluent listeners tend not to be aware of syntactic parsing unless it is disrupted in some way, implying that here too the goal for learners is automatization.

Linguistic transfer

One issue that relates specifically to L2 learners is that of the transfer of L1 bottom-up processing skills, which presents both advantages and disadvantages. The main benefit is that cognitively mature learners may be able to consciously utilize their awareness of syntactic categories in order to form sentences in the L2. A major drawback, however, lies in the unconscious, automatic processing of syntax and particularly phonology. Some researchers claim that all listeners hear sounds primarily in terms of L1 categories (Cutler, 2012) and it is the inability to suppress this tendency that lies at the heart of ineffective L2 listening.

Lexical transfer, too, can both help and hinder the process of L2 acquisition. Many European languages, for example, share words of a similar etymological origin and these cognates are generally a benefit to the learner. A huge number of loan words have also found their way from English into Japanese, with Daulton (2008) estimating the

number to be as high as 3,000. It is a matter of debate whether they actually assist the Japanese learner of English, however, as in many cases these words have been phonologically, and even semantically, transformed beyond recognition.

Pedagogical implications

The question then arises of how learners can maximize their cognitive benefits while at the same time minimizing the negative effects of transfer in order to acquire L2 listening skills. In terms of bottom-up processing, it is vitally important to include some intensive listening in a balanced curriculum. This entails listening closely to a text in order to attend to detailed sounds, words, and grammatical elements, in order to counterbalance the natural tendency to focus mainly on meaning-bearing content words. Less salient functor words, such as articles, are notoriously difficult for learners to acquire, particularly if they do not exist in the L1, precisely because they do not carry much meaning. As a consequence, they are almost always unstressed and therefore difficult to perceive relative to content words (Field, 2008). Two examples of common pedagogical activities that can force students to attend to these kinds of features, and thereby promote bottom-up processing, are shadowing and dictation.

Semantic Processing

The analogy of bottom-up processing is usually made in contrast with top-down (or semantic) processing, which focuses on comprehension of the overall message, rather than the linguistic elements contained within it. Comprehension at this semantic level is almost always the main goal of listening in realistic situations and, although it is facilitated by detailed linguistic knowledge, it is based on connecting broader, more abstract concepts that are stored in memory. For example, an utterance will often contain a combination of given and new information; that is, information that the speaker assumes is currently active and not currently active in the listener's memory.

One important way that this distinction is signalled is through prosody, with given information generally corresponding to a rising intonation pattern and new information to one of falling intonation, which also indicates that a speaker has finished that particular turn. In addition, the most prominent stress tends to be placed on the actual word containing the new information. In fact, understanding the use of suprasegmental features in general is an important listening skill for learners to acquire, further illustrated by the fact that stress and pitch can also reveal a speaker's emotional state.

Schemata

Activated units of knowledge are often referred to as schemata, which include both linguistic and conceptual elements. On a conceptual level, schemata allow us to infer the existence of people, objects, events, or sensory information that are not directly stated by the speaker (Rost, 2016). In one sense, discourse itself can be seen as the process of aligning schemata between speakers and listeners until an acceptable level of

understanding is reached.

The fact that no two people can have exactly the same experience and cultural knowledge, and by extension schemata, means that a degree of inferencing will be necessary in order to reach such a level of understanding. This is true among speakers of the same L1 and potentially all the more so when using an L2, as schematic differences are likely to be exacerbated among speakers of different cultural backgrounds. On a linguistic level, a knowledge of cohesive devices can help the listener to maintain comprehension (Brunfaut & Revesz, 2015), but higher order processes of reasoning and logical thinking are also required to facilitate the understanding of a speaker's intended meaning.

The issue of transfer, mentioned above with regard to linguistic elements, is also relevant here as learners may unconsciously apply inferencing processes that they use in their L1 only to find they are not always appropriate in the L2. For example, issues of humour or politeness are likely to vary from culture to culture which can easily lead to misunderstandings. Such difficulties can be overcome once the learner is made aware of them, although the often deep-seated nature of one's cultural perspective makes this an additional challenge for the listener.

Compensatory strategies

One way of boosting semantic processing, often when linguistic knowledge has proven inadequate, is to apply compensatory strategies. The use of inferencing to ascertain intended meaning is one such strategy, others include things like anticipating content in order to activate schemata, guessing from context, and asking for clarification. Strategies such as these are related to metacognitive awareness, as they involve the monitoring of comprehension and an awareness of the sources of difficulty. This is part of an *individual differences* approach that emphasizes the responsibility of the learner to take charge of their own learning and to become more autonomous.

In fact, there has been a plethora of studies in recent years that have investigated the efficacy of teaching strategy use to learners. For instance, Yeldham (2016), in his study of lower-intermediate students in Taiwan, found that it was more effective to focus on listening strategies alone than a combination of strategies and bottom-up processing skills, although it is questionable whether enough time was allowed for bottom-up skills to develop. Nevertheless, he concluded that strategy training leads to increased comprehension and can prevent an over-reliance on either top-down or bottom-up processing. Graham and Macaro (2008), in their study of lower-intermediate learners of French, also found that strategy training had a positive impact on listening performance, both in terms of listening performance and increased self-efficacy. They attributed this to the use of a "cluster" of strategies targeted at this particular group of students, and further emphasized that some degree of learner engagement in the strategy instruction process is also important if strategy use is to be maintained over the long term. Also investigating adolescent learners of French, Vandergrift (2005) found that a greater use of metacognitive strategies correlated positively with higher motivation, with an inverse relationship found between motivation and self-determination.

As a caveat to this, it should be pointed out that, as useful as strategy-based instruction can be, it should not be seen as a substitute for effective learning of the language itself. Strategies can undoubtedly provide benefits in the short-term, and are especially useful for students who need to pass an exam, but ideally the ultimate objective would be an increase in the kind of linguistic knowledge that makes a reliance on compensatory strategies less necessary.

Pedagogical implications

In pedagogical terms, one way of improving top-down, semantic processing is to provide plenty of practice of comprehending meaning-based input. This implies a need for extensive listening, in which the focus is on global comprehension rather than on individual linguistic items as is the case when listening intensively. Extensive listening involves listening for extended periods of time, with the material at a level that is easily comprehensible for the learner. There has been less research on the effects of extensive listening than on its reading counterpart, but it is thought to be particularly useful for developing automaticity in the processing of oral language. Furthermore, indirect benefits include potential improvements in pronunciation and intonation, as well as affective and confidence-related gains (Brown, Waring, & Donkaewbua, 2008).

Pragmatic Processing

The linguistic and semantic, or bottom-up and top-down, aspects of listening tend to focus mainly on learners as individuals and their internal cognitive processes as they decode and process the stream of information that is contained in aural input. However, there is an additional aspect to listening, that relates to how people combine linguistic information and background knowledge while listening in social situations. Pragmatic processing is a form of ‘reading between the lines’ and concerns the way in which we attempt to understand a speaker’s intended meaning, which may differ from a literal interpretation of what is said. This aspect of listening is in some ways an extension of the skill of inferencing mentioned in the previous section, although it recognizes the fact that the listener, too, has agency as a speaker’s intention cannot be pragmatically realized unless comprehended by the listener.

Grice (1969) framed the unspoken agreement between participants to cooperate towards achieving their communication goals as his four conversational maxims of quantity, quality, relevance, and manner. The maxim of quantity states that a contribution to a conversation should be as informative as required, but no more so. The maxim of quality asserts that speakers should neither say what they believe to be false nor that for which they have insufficient evidence. The maxim of relevance maintains that any contribution should be relevant to the interaction and if for any reason it is not then this should be indicated. Finally, the maxim of manner states that obscure and ambiguous contributions should be avoided. The purpose of this framework is to ensure successful and efficient communication, yet of course these maxims can be flouted, whether

intentionally or otherwise, for example in the use of irony or deception. Furthermore, anyone who has attended a meeting held in Japanese will be aware that these principles are far from culturally universal, illustrating the fact that comprehending a speaker's pragmatic intention can pose a particular challenge for L2 learners.

The social aspect of listening goes beyond cooperating with the speaker in order to comprehend meaning, whether stated overtly or not. Listeners, at least when faced with a physical interlocutor, have to actively participate if a speaker's pragmatic intention is to be realized. Conversational moves such as offers or requests can either be acknowledged or declined, taken up or ignored. The speaker usually has a particular response in mind when initiating such a move; that is, there is typically a preferred and a dispreferred response (Wong & Waring, 2010). L2 listeners need to be aware of their role in such exchanges as well as the consequences of issuing a dispreferred response, which can be seen as challenging or even rude.

Active listening

As well as completing the communicative act, listeners also have a role in terms of signaling their understanding (or lack of understanding) of the speaker's content while also communicating their reaction to it. The short responses known as backchannelling are nevertheless an integral part of face-to-face communication and can help to shape the direction of the conversation as they provide the speaker with an indication of the listener's feelings about what was said. Even semi-verbal utterances like *uh-huh* and *mm-hmm* can encourage the speaker to continue, while a response such as *No way!* Lets the speaker know that the listener is surprised by the previous comment.

Although backchannelling is apparently ubiquitous in all languages, it needs to be specifically taught to learners as it is not necessarily performed as a matter of course in the L2. This is a key point because a lack of such active listening devices can give a negative impression similar to the dispreferred responses mentioned above. Moreover, it can occur at different rates and at different points depending on the language; for instance, it has been claimed that Japanese speakers backchannel more often than English speakers and also time it to coincide with a speaker's utterance, rather than at the end, as this is less likely to be seen as an attempt to take the floor (Norrick, 2012).

The pragmatic aspect of listening therefore emphasizes that listening, far from being a passive activity, is actually a collaborative process of co-construction when it takes place in the presence of an interlocutor. In this sense, listeners need to make use of social knowledge in order to participate competently in this process and to give appropriate feedback and responses, which in turn influences the way in which the interaction proceeds. The fact that this takes place in real time, while involving both linguistic and cultural aspects, makes this all the more challenging for L2 learners, who also have to deal with the misunderstandings and breakdowns inherent in speaking a foreign language.

The Role of Interaction

It is clear from examining the pragmatic aspect of listening that it has a social dimension, at least when it takes place in conversation settings. Pragmatics tends to deal with more top-down elements, such as how intended meaning can be inferred and even co-constructed by participants. Yet there is more to interactive listening than this, as it can also play a role in the development or acquisition of actual linguistic features, as stated in the Interaction Hypothesis, which emphasizes the strong connection between listening and speaking. In broad terms, the key elements of pedagogical interaction have been defined as input, the negotiation of meaning, and output. By definition, one person's output becomes another person's input, with negotiation of meaning serving to deal with any communication breakdowns that arise. The Interaction Approach views all three of these elements as essential to language acquisition.

Input has been further subdivided into the categories of positive and negative evidence (Long, 1996). The former consists of linguistic features that are accurate or permissible in the relevant language. In terms of interaction, positive evidence takes the form of target-like utterances that are supplied by an interlocutor. Negative evidence, by contrast, provides information about what is not accurate or permissible in the L2. During interaction, such information can be supplied when communication has been unsuccessful, and learners become aware that an utterance was inaccurate, or non-target-like.

It is these unsuccessful attempts at communication that open the door to the negotiation of meaning. When learners receive negative evidence, this promotes attention to form and provides the immediate opportunity to produce modified output (Long, 1996). Through this process, learners can notice gaps between their own inaccurate output and more target-like forms. It is then possible to connect an appropriate form with the meaning they intend to convey.

Output then allows learners to test hypotheses about the L2 and what they believe might be possible (Skehan, 1998). A hypothesis can either be confirmed, if communication proceeds unhindered, or disconfirmed, should the communication break down or corrective feedback be received. The theoretical case is therefore strong that interaction, by combining input and output, does indeed have an important role to play in L2 acquisition.

In terms of empirical evidence, Mackey and Goo's (2007) meta-analysis found that learners who took part in interactive tasks improved their grammatical and lexical knowledge considerably more than those who did not. Moreover, the fact that these differences were greater on delayed than immediate post-tests implies that such interactive activities might indeed contribute to the growth of implicit knowledge. A number of individual studies, too, have found that classroom interaction promotes L2 development. For example, Mackey (1999) found that learners who engaged in negotiated interaction made more progress in question formation than both a control group and learners who undertook the same exercises but without interaction.

These findings, and the benefits of negotiating meaning, have important pedagogical

implications for the L2 learner. For instance, interactive activities, such as information and opinion gap tasks, that present a clear opportunity for negotiation should be provided, while the use of clarification and comprehension checks should be encouraged. Feedback should also be given when appropriate, especially if it combines target and non-target forms (Lee & Lyster, 2016).

The Role of Input

Although listening in conversation is necessarily social, listening in the classroom is very often a solitary activity with learners asked to process disembodied input from a CD or video. In such cases the input is usually selected and controlled by the teacher, so the choice of material becomes of paramount importance.

Krashen (1982), in his influential input hypothesis, attempted to tie such material to what he claimed was the natural order of acquisition. If the features of a language are acquired in a predictable sequence, he argued, it should therefore be possible to help learners develop in a consistent manner. The cornerstone of this approach was to provide large amounts of comprehensible input (the so-called *i+1*) aimed slightly above the learner's current level of competence in terms of its syntax, vocabulary, and complexity. The idea was that learners naturally improve their listening ability by being exposed to input that becomes gradually more challenging, in accordance with their rate of development. This then forms the foundation for the development of speaking, which emerges as a result of this process. In terms of listening instruction, therefore, the key to this approach becomes extensive listening, with its focus on easily comprehensible material.

Although, as mentioned earlier, extensive listening undoubtedly helps with the automatization of linguistic features, the problem with relying on this type of input exclusively is that it provides no form of language-focused learning and takes no account of individual differences. It is clear that learners do not all progress in the same way and there is very little evidence that syntactic elements are acquired in a uniform manner. In addition, there has never been any suggestion that vocabulary items are learned in any sort of predictable sequence, as their acquisition depends on the amount of attention that is paid to them (Hulstijn & Laufer, 2001).

In fact, it is widely accepted that vocabulary learning is an integral part of developing listening skills, both in the L1 and L2, with a robust relationship between the two having been established. It has been claimed that learners need to be able to recognize around 3,000 word families, and that familiarity with about 90 per cent of content words is necessary in order to comprehend daily conversation (Schmitt & Schmitt, 2012). Any prolonged attempt to improve listening skills, therefore, should involve an element of explicit vocabulary learning.

The authenticity debate

Another criticism of the exclusive provision of easily comprehensible input is that it

lacks authenticity. In other words, if the target of instruction is for learners to be able to understand language as it is actually used by proficient speakers then this kind of language must be introduced into the classroom. This includes language that is spoken at a natural speed, incorporating commonly used features of connected speech such as vowel reduction, assimilation, and elision, as well as colloquial language. On the other hand, others argue that this kind of language is too difficult for learners to deal with, as it overloads working memory leading to ineffective bottom-up processing and poorer levels of comprehension (McBride, 2011). This can then have a negative effect on motivation levels as learners lose confidence in their listening ability.

Increasing metacognitive awareness and developing strategies is one way of making authentic language more manageable for learners (Vandergrift & Tafaghodtari, 2010). Another is to design tasks that require learners to deal with only short segments and focus only on particular elements, with repeated listenings if appropriate. This could include transcription tasks, for example, or scene retellings that require students to understand only the gist of what they see. Other ways of adjusting difficulty include pre-listening schema activation activities, pre-teaching vocabulary, and giving students a copy of the script to read in advance of listening to the text. Whatever type of input is provided, it should be made accessible to learners if they are to be expected to make the cognitive commitment toward understanding it (Rost, 2016).

Two specific pedagogical approaches that have been developed to help learners process oral language are the provision of enriched input and processing instruction. The former involves ‘flooding’ a text with exemplars of the target language, usually a syntactic feature, while the latter involves designing tasks that encourage listeners to consciously notice how a particular grammatical feature is used. Having reviewed a number of studies based on these approaches, Ellis (2015) has concluded that they can indeed help learners understand target features, especially if used in conjunction with explicit instruction. This kind of listening for language acquisition is, of course, very different from listening for comprehension, although there can be space for both in a balanced curriculum.

Conclusion

Listening is undoubtedly a complex, sophisticated skill, consisting of many different physical, neurological, linguistic, semantic, pragmatic, and social elements that have evolved over millennia. This is true for both L1 and L2 learners, although the former have the advantage of learning their native language prior to adolescence while still firmly within the critical (or sensitive) period, after which the ability to acquire native-like competence declines sharply. L2 learners are further hindered by the natural inclination to transfer knowledge from the L1, of which the phonological aspect can be especially stubborn. Adult learners have advantages too, however, in terms of cognitive maturity, which facilitates the metacognitive awareness necessary to consciously attempt to overcome their difficulties.

In pedagogical terms, this means focusing on the development of both bottom-up and top-down processes in order to successfully deal with the diverse demands that listening poses, from the comprehension of vocabulary and syntax, to that of global meaning and implied speaker intention. Add to that the demands of phonology and prosody, as well as the requirements of schema alignment and active listening in conversation, and it is not hard to understand how challenging listening can be for second-language learners.

In order to be successful, at whatever level or stage of development, a balance needs to be struck between intensive, linguistically-based, activities on the one hand, and extensive or comprehension-based ones on the other. Long-term success, however, rests on the learner seeking out opportunities for autonomous learning so that they can take advantage of all the many individual and interactive sources of input that exist beyond the classroom.

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